

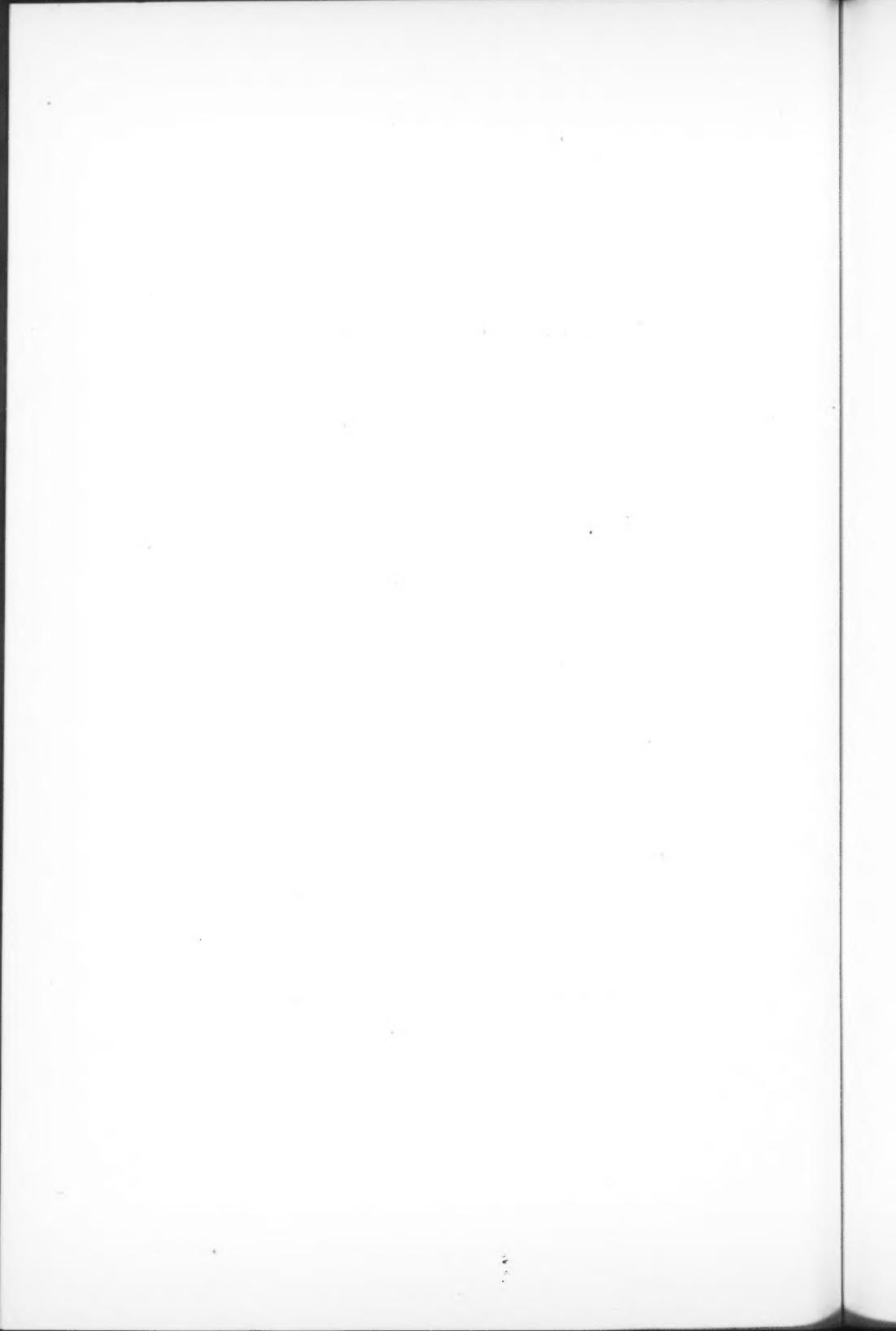
CANADIAN JOURNAL OF RESEARCH

VOLUME 21
1943

SECTION C



Published by the
**NATIONAL
RESEARCH COUNCIL
of CANADA**



SECTION C
INDEX TO VOLUME 21

Authors

Anderson, J. A.—See Eva, W. J.

Anderson, J. A., Babbitt, J. D., and Meredith, W. O. S.—The effect of temperature differential on the moisture content of stored wheat, 297.

Anderson, J. A. and Cunningham, R. L.—Micro tests of alimentary pastes. III. The differential response of varieties to processing methods, 265.

Anderson, J. A. and Eva, W. J.—The protein content of corresponding grades of wheat drawn from the northern and southern portions of Western Canada, 276.
Starch content of Western Canadian wheat. II. Its estimation from protein content, and some estimated data, 323.

Arnason, T. J.—Female sterility in potatoes, 41.

Babbitt, J. D.—See Anderson, J. A.

Berkeley, G. H. and Phillips, J. H. H.—Tobacco streak, 181.

Britten, E. J.—See Thompson, W. P.

Broadfoot, W. C.—See Tyner, L. E.

Corns, W. G.—See McCalla, A. G.

Cunningham, R. L.—See Anderson, J. A.

Dansereau, P.—L'érablière laurentienne. I. Valeur d'indice des espèces, 66.

Eva, W. J.—See Anderson, J. A.

Eva, W. J., Levi, I., and Anderson, J. A.—Starch content of Western Canadian wheat, 173.

Harding, J. C.—See Thompson, W. P.

Henry, A. W.—See Ludwig, R. A.

Hildebrand, A. A. and Koch, L. W.—Rhizopus root rot of sugar beet, 235.

Hunter, G.—See Tuba, J.

Hutchinson, M. J.—See Tuba, J.

James, N. and Sutherland, M. L.—Numbers of bacteria developing on plates in relation to soil environment, 191.
Variation in numbers of bacteria in two plots, 119.

Johnson, L. P. V.—The storage and artificial germination of forest tree pollens, 332.

Johnson, T.—See Newton, M.

Johnson, T. and Newton, M.—The inheritance of a mutant character in *Puccinia graminis* *Triticici*, 205.

Katznelson, H. and Richardson, L. T.—The microflora of the rhizosphere of tomato plants in relation to soil sterilization, 249.

Kennedy, L. L.—See Tuba, J.

Knowles, P. F.—A second factor for awn barbing in durum wheat, 198.

— II —

Koch, L. W.—See Hildebrand, A. A.

Krotkov, G.—Diurnal changes in the carbohydrates of wheat leaves, 26.

Leach, W.—Studies on the metabolism of cereal grains. II. The effect of age and kernel size on the course of respiration of wheat during early germination stages, 289.

Levi, I.—See Eva, W. J.

Love, R. M.—A cytogenetic study of offtypes in a winter wheat, Dawson's Golden Chaff, including a white chaff mutant, 257.

Ludwig, R. A. and Henry, A. W.—Studies on the microbiology of recontaminated sterilized soil in relation to its infestation with *Ophiobolus graminis* Sacc., 343.

McCalla, A. G. and Corns, W. G.—Effects of variety and environment on the starch content of wheat and barley, 307.

McKeen, C. D.—A ring spot disease of gladiolus corms, 1.

A study of some factors affecting the pathogenicity of *Verticillium albo-atrum* R. & B., 95.

Meredith, W. O. S.—See Anderson, J. A.

Meredith, W. O. S. and Sallans, H. R.—Varietal differences in barleys and malts. XIII. Wort attenuation, viscosity, and turbidity and their inter-relations, 351.

Newton, M.—See Johnson, T.

Newton, M. and Johnson, T.—Adult plant resistance in wheat to physiologic races of *Puccinia triticina* Erikss., 10.

Nobles, M. K.—A contribution toward a clarification of the *Trametes serialis* complex, 211.

Pearce, J. A.—Effect of storage on thiamin content and on development of rancidity in wheat germ, 57.

Phillips, J. H. H.—See Berkeley, G. H.

Reedman, E. J. and Young, G. A.—A visual fluorometer for the chemical estimation of vitamin B₁ in wheat flour, 145.

Richardson, L. T.—See Katzenelson, H.

Sallans, H. R.—See Meredith, W. O. S.

Sutherland, M. L.—See James, N.

Thatcher, F. S.—Cellular changes in relation to rust resistance, 151.

Thompson, W. P., Britten, E. J., and Harding, J. C.—The artificial synthesis of a 42-chromosome species resembling common wheat, 134.

Tuba, J., Hunter, G., Hutchinson, M. J., and Kennedy, L. L.—On sources of vitamin C. I. Rose hips, 363.

Tyner, L. E. and Broadfoot, W. C.—Studies on foot and root rot of wheat. VII. Some factors affecting the health of wheat seedlings in nutrient solutions, 18.

Young, G. A.—See Reedman, E. J.

SECTION C
INDEX TO VOLUME 21

Subjects

Acer saccharophorum, See under Trees.

Actinomycetes, See under Fungi.

Aegilops speltoides, Hybrid of *Triticum turgidum* and, resembling common wheat, 134.

Alimentary pastes, Differential response of wheat varieties to processing methods used in micro tests of, 265.

Antirrhinum majus, Symptoms of tobacco streak on, 186.

Avena, See Oats.

Awn barbing in durum wheat, A second factor for, 198.

Bacteria, See under Fungi.

Barberry, Development of white rust pustules on, 205.

Barley
Rust resistance of, as affected by smut infection, 162.
Starch content of, Effect of variety and environment on, 307.
Wort qualities of 24 varieties of, 351.

Bean, Symptoms of tobacco streak on, 187.

Beet, Sugar, *Rhizopus* root rot of, 235.

Berberis vulgaris, See Barberry.

Beta, See Beet.

Betula, See under Trees.

Birch, See Trees, *Betula*.

Brown rot, See Fungi, Rot.

Calendula officinalis, Symptoms of tobacco streak on, 186.

Callistephus chinensis, not susceptible to tobacco streak, 187.

Capsicum frutescens, not susceptible to tobacco streak, 187.

Carbohydrates
Starch content of barley as affected by variety and environment, 307.

Carbohydrates—concluded
Starch content of wheat as affected by variety and environment, 307.
Starch content of wheat from Western Canada, 173.
Starch content of wheat from Western Canada as estimated from protein content, 323.
Sugar of wheat leaves, Diurnal changes in, 26.

Cereals, See Barley, Corn, Oats, and Wheat.

Chlorosis of wheat seedlings grown in nutrient solutions, 19.

Chromosomes
Cytogenetic studies of offtypes in a winter wheat, 257.
in embryo sacs of fertile and sterile potatoes, 43-52.
Numbers and arrangements of, in *Triticum* \times *Aegilops* hybrid resembling common wheat, 136.

Clover, Sweet, See Sweet clover.

Cold hardening of wheat, Effect of, on reaction to rust, 160.

Corms, *Gladiolus*, Ring spot disease of, 1.

Corn, Effect of smut infection on rust resistance of, 162.

Datura Stramonium, Symptoms of tobacco streak on, 186.

Dawson's Golden Chaff winter wheat, Cytogenetic studies of offtypes in, 257.

Douglas fir, See Trees, *Pseudotsuga taxifolia*.

Durum wheat, See Wheat.

Ferric tartrate, Effect of, on chlorosis in wheat seedlings, 19.

Flour, Fluorometer for estimation of vitamin B_1 in, 145.

Fluorometer, Visual, for estimation of vitamin B_1 in wheat flour, 145.

Foot rot, See Fungi, Rot.

Fungi

Actinomycetes

- Numbers of
 - in rhizosphere of tomato plants in relation to soil sterilization, 250.
 - in treated and untreated soil, 346.

Bacteria

- in soil of two plots as related to numbers of colonies on plates, 119.
- in soil when treated and untreated, 346.
- isolated from diseased gladiolus corms, 7.
- Numbers of
 - and kinds of, in rhizosphere of tomato plants in relation to soil sterilization, 250, 251.
 - and their variations, in two plots, 119.
 - developing on plates in relation to soil environment, 191.

Cellular changes of hosts in relation to rust resistance, 151.

Fusarium

- culmorum extracts and their effect on wheat seedlings grown in nutrient solutions, 18.
- isolated from diseased gladiolus corms, 6.
- isolated from diseased sugar beets, 237.
- Helminthosporium sativum*, Effect of extracts of, on wheat seedlings grown in nutrient solutions, 18.

Inheritance of a mutant character of *Puccinia graminis* Tritici, 205.

Kinds of

- in diseased gladiolus corms, 6.
- in diseased sugar beets, 237.
- in rhizosphere of tomato plants in relation to soil sterilization, 251.
- in treated and untreated soil, 346.

Leaf rust, See Fungi, Rust.

Numbers of

- in rhizosphere of tomato plants in relation to soil sterilization, 250.
- in treated and untreated soil, 346.

Ophiobolus graminis, Microbiology of soil in relation to infestation with, 343.

Penicillium, isolated from diseased gladiolus corms, 6.

Polyporus palustris, Morphological, cultural, and interfertility studies on, 211.

Poria carbonica

- a new species, 231.
- Morphological, cultural, and interfertility studies on, 211.

Poria microspora

- A new species, 220.
- Morphological, cultural, and interfertility studies on, 211.

Poria Sequoiae, Morphological, cultural, and interfertility studies on, 211.

Fungi—concluded

Puccinia

- graminis avenae*, Resistance of smut-infected oats to, 162.
- graminis secalis*, Resistance of smut-infected barley to, 162.
- graminis Tritici*, See Rust (Stem).
- sorghi*, Resistance of smut-infected corn to, 162.
- triticina*, See Rust (Leaf).

Rhizopus

arrhizus

- Growth and pathogenicity of, as affected by temperature, 241, 243.
- Root rot of sugar beet caused by, 235.
- nigricans*, Growth in culture and pathogenicity of, as affected by temperature, 241, 243.
- oryzae*, Growth in culture and pathogenicity of, as affected by temperature, 241, 243.

Ring spot of gladiolus corms, 1.

Rot

- Brown, of Sitka spruce and Douglas fir, Determination of the fungus causing, 211.

- Foot and root, of wheat grown in nutrient solutions, 18.

- Root, of sugar beet, caused by *Rhizopus arrhizus*, 236.

Rust, Leaf, Resistance of wheat to races of, 10.

Rust, Stem

- Browning reaction of wheat to, 152.
- Cellular changes in relation to, 151.
- Inheritance of a mutant character in, 205.
- Permeability changes associated with α reaction of, on wheat, 157.
- reaction of wheat, Effect of cold hardening on, 160.

- Resistance of mature wheat plants to, 163.

- Resistant type flecks in wheat developed in relation to, 168.

- Smut infection and its effect on susceptibility of cereal crops to, 161.

Smut infection, See Rust (Stem).

Stem rust, See Rust.

Trametes serialis, Morphological, cultural, and interfertility studies on, 211.

Trichoderma viride, Prevalence of, in sterilized recontaminated soil, 349.

Verticillium albo-atrum, Factors affecting pathogenicity of, 95.

Fusarium, See under Fungi.

Germination

of pollen from forest trees, by artificial means, 332.
of wheat and respiration as affected by age and size of kernels, 289.

Gladiolus, Ring spot disease of corms of, 1.

Grain, See Barley, Corn, Oats, and Wheat.

Helminthosporium sativum, See under Fungi.

Hordeum, See Barley.

Hybrid species (*Triticum* \times *Aegilops*), resembling common wheat, 134.

Inheritance

of a mutant character in *Puccinia graminis* *Triticici*, 205.
of awn barbing in durum wheat, 198.

Iron, Effect of, on chlorosis in wheat seedlings, 19.

Larch, See Trees, *Larix*.

Larix, See under Trees.

Leaf rust, See under Fungi.

Leaves of wheat, Diurnal changes in carbohydrates of, 26.

Light

Effect of, on artificial germination of forest tree pollens, 338.
Effect of, on carbohydrates of wheat leaves, 29-40.

Lycopersicon, See Tomato.

Malts, Quality of wort produced from different, 351.

Manganese, Effect of, on utilization of iron by wheat grown in nutrient solutions, 22.

Maple grove, Index value of species found in the, 66.

Medicago, See Sweet clover.

Metabolism, See Respiration.

Microbiology, See Microflora.

Microflora

of rhizosphere of tomato plants in relation to soil sterilization, 249.
of soil in relation to infestation with *Ophiobolus graminis*, 343.

Micro tests of alimentary pastes, Differential response of wheat varieties to processing methods used in, 265.

Moisture

of storage and its effect on germination of forest tree pollens, 339.
of stored wheat, and the effect of temperature on, 297.

Soil

Bacterial numbers as affected by, 119.
Verticillium wilt as affected by, 97, 108.

Mutant character in *Puccinia graminis* *Triticici*, Inheritance of, 205.

Necrosis, caused by tobacco streak, on various hosts, 187.

Nicandra physalodes, Symptoms of tobacco streak on, 186.

Nicotiana, Species of, affected by tobacco streak, 183.

Nutrients

Effect of, on germination of forest tree pollens, 336.
Factors affecting foot and root rot of wheat seedlings grown in solutions of, 18.

Oak, See Trees, *Quercus*.

Oats, Rust resistance of, as affected by smut infection, 162.

Offtypes in a variety of winter wheat, Cytogenetic studies in, 257.

Ophiobolus graminis, See under Fungi.

Ovules of potato varieties, Development of, 43.

Penicillium, See under Fungi.

Petunia hybrida, not susceptible to tobacco streak, 187.

Phaseolus vulgaris var. *humilis*, See Bean.

Physalis angulata, not susceptible to tobacco streak, 187.

Picea, See under Trees.

Pine, See Trees, *Pinus*.

Pinus, See under Trees.

Pollen of forest trees, Storage and artificial germination of, 332.

Polyporus palustris, See under Fungi.

Poplar, See Trees, *Populus*.

Populus, See under Trees.

Poria carbonica, See under Fungi.

Poria microspora, See under Fungi.

Potato

Female sterility in, 41.

Ovule development in fertile and sterile varieties of, 43.

Varieties of, examined for female sterility, 42.

Protein, Content of, in Western Canadian wheat, 276, 323.

Pseudotsuga, See under Trees.

Puccinia, See under Fungi.

Quercus, See under Trees.

Rancidity in wheat germ, Effect of storage on, 57.

Respiration

of wheat during early germination, Effect of age and kernel size on, 289.

of wheat leaves and its relation to sugar content, 30.

Rhizopus, See under Fungi.

Rhizosphere of tomato plants, Microflora of, in relation to soil sterilization, 249.

Ring spot

caused by tobacco streak, on various hosts, 187.

of gladiolus corms, 1.

Root rot, See Fungi, Rot.

Rose(s)

Bark, hips, leaves, and petals of, as sources of vitamin C, 365, 371.

species, Amounts of vitamin C in, 365.

Rot, See under Fungi.

Rust, See under Fungi.

Sampling dates, Effect of, on bacterial numbers in two plots, 119.

Seed(s) of potato varieties, Numbers of, that develop, 43.

Seedlings, See under Wheat.

Sinningia speciosa, not susceptible to tobacco streak, 187.

Sitka spruce, See Trees, *Picea sitchensis*.

Smut, See under Fungi.

Snapdragon, Symptoms of tobacco streak on, 186.

Soil

environment and its relation to bacteria developing on plates, 191.

Microbiology of, in relation to infestation with *Ophiobolus graminis*, 343.

moisture and its effect on the activity of *Verticillium* inoculum, 108.

of two plots, Bacteria in, 119.

Organic substances in, and their effect on the aggressiveness of *Verticillium*, 109.

sterilization, Microflora of rhizosphere of tomato plants in relation to, 249.

temperature and moisture and its effect on incidence of *Verticillium* wilt, 97.

under cropped and fallow conditions, Persistence and aggressiveness of *Verticillium* in, 103.

Solanum tuberosum, See Potato.

Spruce, See Trees, *Picea*.

Starch, See under Carbohydrates.

Sterility in potatoes, 41.

Storage

of forest tree pollens, 332.

of wheat and the effect of temperature on its moisture content, 297.

of wheat germ and its effect on thiamin content and rancidity, 57.

Streak, See Tobacco.

Sugar, See under Carbohydrates.

Sugar beet, See Beet.

Sweet clover, a possible host of tobacco streak virus, 187.

Temperature

Effect of, on growth and pathogenicity of *Rhizopus*, 241, 243.

of soil and its effect on the incidence of *Verticillium* wilt, 97.

of soil incubation and its effect on the persistence of *Verticillium*, 100.

of storage and its effect on germination of forest tree pollens, 339.

of stored wheat and its effect on moisture content, 297.

Thiamin, See Vitamin B₁.

Tilletia, See Fungi, Smut.

Tobacco streak

Overwintering of, 189.
Properties of, 188.
Symptoms of, on various hosts, 183-187.
Transmission of
experimentally, 182.
in the field, 189.

Tomato

plants, Microflora of rhizosphere of, in
relation to soil sterilization, 249.
Symptoms of tobacco streak on, 184.

Trametes serialis, See under Fungi.

Trees

Acer saccharophorum, Index value of
species in groves predominated by, 66.
Betula lutea, Storage and artificial germination
of pollen of, 333.
Larix species used in tests on storage and
germination of pollen, 333.
Picea
sitchensis, Studies on the fungus causing
brown rot of, 211.
Species of, used in tests on storage and
germination of pollen, 333.
Pinus, Species of, used in tests on storage
and germination of pollen, 333.
Pollen of, Storage and artificial germination
of, 332.
Populus species used in tests on storage
and germination of pollen, 333.
Pseudotsuga taxifolia, Studies on the fun-
gus causing brown rot of, 211.
Quercus coccinea, Storage and germination
of pollen of, 333.

Triticum

See Wheat.
turgidum \times *Aegilops* hybrid resembling
common wheat, 134.

Ustilago, See Fungi, Smut.

Verticillium albo-atrum, See under Fungi.

Virus, See Tobacco streak.

Vitamin B₁

in wheat flour, Fluorometer for chemical
estimation of, 145.
in wheat germ, Effect of storage on, 57.

Vitamin C

in rose bark, leaves, and petals, 371.
in rose hip jelly, 369.

Vitamin C—concluded

in rose hips, as affected by cooking time,
369.
in rose hips, as affected by cooking utensils,
367.
in rose hips, dehydrated, 370.
in rose hips, fresh, 365.
in rose hips preserved in potassium meta-
bisulphite, 369.
in rose hips, stored at low temperature, 369.

Wheat

Browning reaction of, to *Puccinia graminis*
Triticici, 152.
Carbohydrates of leaves of, Diurnal
changes in, 26.
Cellular changes of, in relation to rust
resistance, 151.
Cold hardening of, and its effect on reaction
to rust, 160.
Cytological studies in, 136, 257.
Development of resistant type flecks in, in
relation to *Puccinia graminis Triticici*, 168.
Durum, A second factor for awn barbing in,
198.
flour, Fluorometer for estimation of vitamin
B₁ in, 145.
Foot and root rot of seedlings of, in nutrient
solutions, 18.
germ, Effect of storage on thiamin content
and rancidity in, 57.
Germination of, Effect of age and kernel
size on respiration during, 289.
leaves, Diurnal changes in carbohydrates
of, 26.
-like hybrid (*Triticum* \times *Aegilops*), 134.
Offtypes of, Cytogenetic studies in, 257.
Permeability changes associated with *x*
reaction of *Puccinia graminis Triticici* on,
157.
Protein content of, from Western Canada,
276, 323.
Reactions of varieties of, to races of
Puccinia triticina, 11, 13.
Resistance of, to *Puccinia graminis Triticici*
and *P. triticia*, 163, 10.
Respiration of, during early germination,
as affected by age and kernel size, 289.
seedlings
Reaction of, to *Ophiobolus graminis* in
treated and untreated soil, 343.
grown in nutrient solutions, Foot and
root rot of, 18.
Smut infection of, and its effect on suscept-
ibility to rust, 161.
Starch content of, See under Carbo-
hydrates.

— VIII —

Wheat—continued

- Stem rust of, See Fungi (Rust).
- Stored, Effect of temperature on moisture content of, 297.
- Sugar in leaves of, See under Carbohydrates.
- Synthesis of a hybrid resembling, 134.
- varieties, Differential response of, to processing methods used in micro tests of alimentary pastes, 265.
- Western Canadian
 - Protein content of, 276, 323.
 - Starch content of, 173, 323.

Wheat—concluded

- White chaff mutant of, Cytogenetic studies in, 258.
- Winter, Cytogenetic studies of offtypes in, 257.

White chaff wheat mutant, See under Wheat.

Wilt, *Verticillium*, Factors affecting the pathogenicity of, 95.

Wort, Qualities of, produced from 24 barley varieties, 351.

Zea, See Corn.



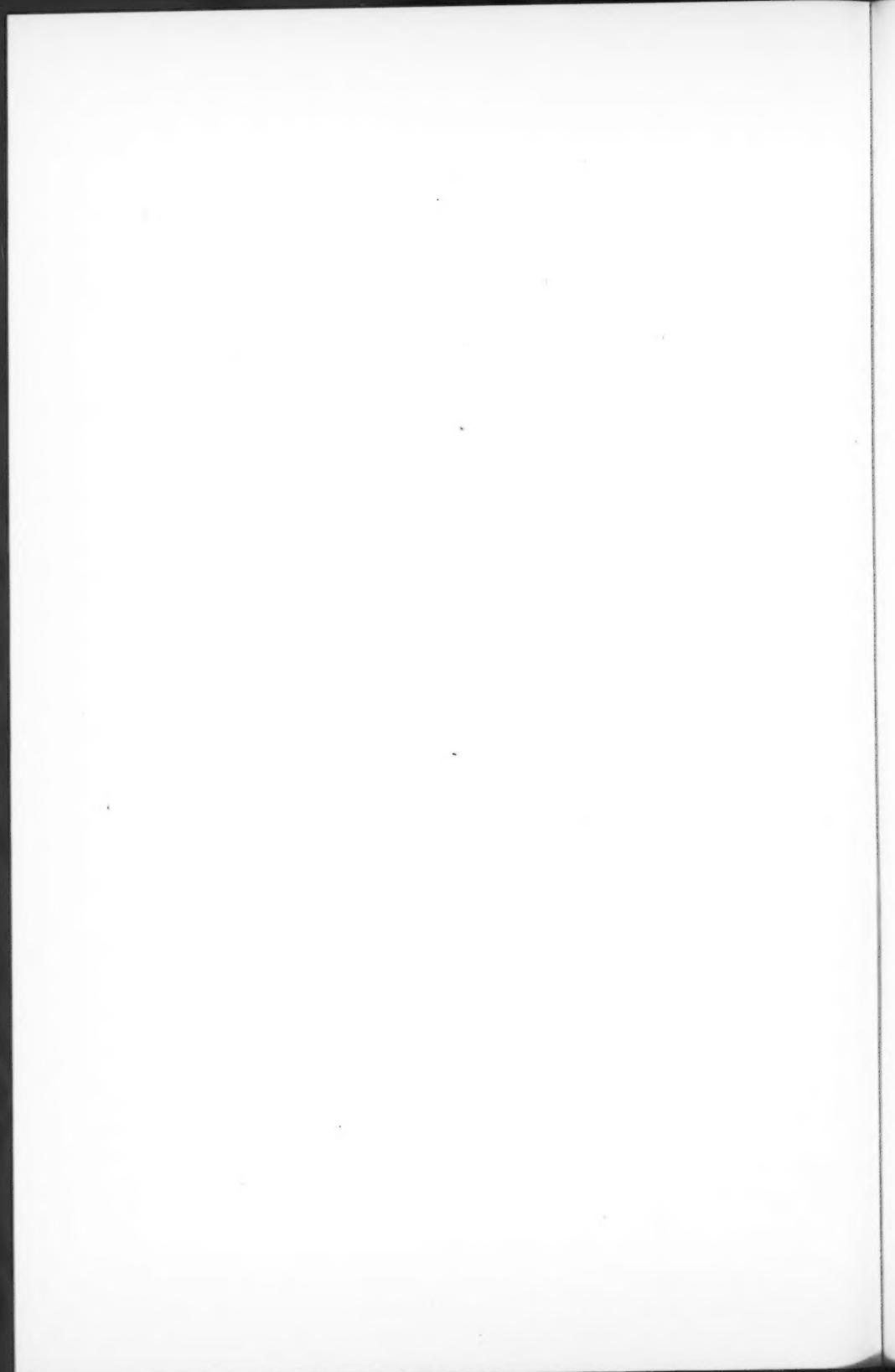
CANADIAN JOURNAL OF RESEARCH

VOLUME 21
1943

SECTION D



Published by the
**NATIONAL
RESEARCH COUNCIL
*of CANADA***



SECTION D
INDEX TO VOLUME 21

Authors

Allen, D. E.—See Collier, H. B.

Anderson, R. M. and Rand, A. L.—Variation in the porcupine (genus *Erethizon*) in Canada, 292.

Armstrong, F. H.—See Hayes, F. R.

Arnason, A. P.—See Glen, R.

Atwood, C. E. and Peck, O.—Some native sawflies of the genus *Neodiprion* attacking pines in Eastern Canada, 109.

Buckby, L.—See Reedman, E. J.

Cameron, T. W. M.—Studies on trichinosis. IV. Human incidence in Montreal, 413.

Charnley, F. and Young, O. C.—The effect of freezing and thawing on the quality of canned herring, 8.

Collier, H. B., Allen, D. E., and Swales, W. E.—Observations on the fate of phenothiazine in domestic animals, 151.

Cowan, I. McT.—Notes on the life history and morphology of *Cephenemyia jellisoni* Townsend and *Lipoptena depressa* Say, two dipterous parasites of the Columbian black-tailed deer (*Odocoileus hemionus columbianus* (Richardson)), 171.

Ettinger, G. H.—See Sawyer, M. E. M.

Fulton, C. O.—See Gibbons, N. E.

Gibbons, N. E.—See Thistle, M. W.

Gibbons, N. E. and Fulton, C. O.—Dried whole egg powder. VII. Effect of temperature and moisture on the bacterial content of liquid and dried egg, 332.

Glen, R., King, K. M., and Arnason, A. P.—The identification of wireworms of economic importance in Canada, 358.

Glenny, F. H.—Main arteries in the neck and thorax of the rhea embryo, 189.

Grant, G. A.—See White, W. H.

Hart, J. S.—The cardiac output of four freshwater fish, 77.

Hayes, F. R. and Armstrong, F. H.—Growth of the salmon embryo, 19.

King, K. M.—See Glen, R.

MacLulich, D. A.—Parasites of trout in Algonquin Provincial Park, Ontario, 405.
Proteocephalus parallactus, a new species of tapeworm from lake trout, *Cristivomer namaycush*, 145.

Miller, R. B.—Studies on cestodes of the genus *Triaenophorus* from fish of Lesser Slave Lake, Alberta.
I. Introduction and the life of *Triaenophorus crassus* Forel and *T. nodulosus* (Pallas) in the definitive host, *Esox lucius*, 160.
II. The eggs, coracidia, and life in the first intermediate host of *Triaenophorus crassus* Forel and *T. nodulosus* (Pallas), 284.

Morrison, F. O.—The standardizing of a laboratory method for comparing the toxicity of contact insecticides, 35.

Munro, J. A.—Studies of waterfowl in British Columbia. Mallard, 223.

Pearce, J. A.—Behaviour and nature of the fluorescing substances in dried egg powders, 98. The dehydration of pork, 394.

Pearce, J. A.—See Thistle, M. W.

Pearce, J. A., Thistle, M. W., and Reid, M.—Dried whole egg powder. VIII. An improved fluorescence method and some factors affecting the measurement, 341.

Peck, O.—See Atwood, C. E.

Rand, A. L.—See Anderson, R. M.

Reedman, E. J.—The production of canned precooked chicken, 324.

Reedman, E. J. and Buckby, L.—Investigations on the use of Irish moss in canning of meat, 348. The vitamin B₁ content of canned pork, 261.

Reid, M.—See Pearce, J. A., Thistle, M. W., White, W. H., and Woodcock, A. H.

Sawyer, M. E. M. and Ettinger, G. H.—The cardiac action of posterior pituitary extract in physiological doses, in the normal dog, and after partial and complete denervation of the heart, 311.

Steinberg, A. G.—The development of the wild type and Bar eyes of *Drosophila melanogaster*, 277.

Swales, W. E.—See Collier, H. B.

Thistle, M. W.—See Pearce, J. A. and White, W. H.

Thistle, M. W., Pearce, J. A., and Gibbons, N. E.—Dried whole egg powder. I. Methods of assessing quality, 1.

Thistle, M. W., Reid, M., and Gibbons, N. E.—Dried whole egg powder. V. Definition and properties of low grade egg powders, 267.

White, W. H.—See Woodcock, A. H.

White, W. H. and Grant, G. A.—Dried whole egg powder. III. A refractometric method for the determination of solubility, 203.

White, W. H. and Thistle, M. W.—Dried whole egg powder. II. Effect of heat treatment on quality, 194. IV. Effect of moisture content on keeping quality, 211.

White, W. H., Thistle, M. W., and Reid, M.—Dried whole egg powder. VI. Effect of storage temperature and gas packing on keeping quality, 271.

Woodcock, A. H.—Colour of meat. IV. Measurement of the colour of bacon, 90.

Woodcock, A. H. and Reid, M.—Dried whole egg powder. IX. Effect of drying conditions on quality, 389.

Woodcock, A. H. and White, W. H.—Canadian Wiltshire bacon. XXIII. The effect of concentration of curing salts on colour and colour stability, 85.

Young, O. C.—See Charnley, F.

SECTION D
INDEX TO VOLUME 21

Subjects

Acanthocephala, See under Parasites.

Agar

Irish moss as substitute for, in canning of chicken, 348.
used in canning chicken, 328.

Algae, See *Chondrus crispus*.

Air, Effect of, on storage of dried egg powder, 275.

Ameiurus nebulosus, See under Fish.

Amia calva, See under Fish.

Anas platyrhynchos, See under Birds.

Animals, See Deer, Dog, Horse, Pig, Porcupine, Rabbit, and Sheep.

Arteries, in the neck and thorax of the rhea embryo, 189.

Atropine, Effect of, on response of dog heart to posterior pituitary extract, 314-322.

Aves, See Birds.

Bacon, See under Meat.

Bacteria

in dried egg powder

Formation of fluorescing substances as affected by, 106.

Numbers of, as affected by moisture, 337.

Numbers of, as affected by temperature, 334.

Numbers of, as test of quality, 2-6.

in liquid egg, Numbers of, as affected by temperature, 333.

Bar eyes of *Drosophila melanogaster*, Development of, 280.

Beating value as test of quality in dried egg powder, 2-6.

Birds

Anas platyrhynchos in British Columbia

Distribution and seasonal movements of, 224.

Economic status of, 258.

Factors restricting numbers of, 245.

Birds—concluded

Anas platyrhynchos in British Columbia—concluded

Food and feeding habits of, 247, 251.

Reproduction of, 238.

Sex ratio of, 247.

Rhea, Arteries in the neck and thorax of embryo of, 189.

Blood

Output of, from heart of four fish species, 77.

pressure, See Heart, Dog.

system, See Arteries.

Bowfin, See Fish, *Amia calva*.

Brown trout, See Fish, *Salmo fario*.

Canning

of chicken

Device for testing jelly strength used in, 329.

Factors affecting quality in, 325.

Methods of precooking in, 325.

Use of Irish moss in, 348.

of herring, Effect of freezing and thawing on, 8.

Carbon dioxide

Blood of fish and its relation to stroke output of the heart as affected by, 81.

Storage of dried eggs as affected by packing in, 275.

Carp, See Fish, *Cyprinus carpio*.

Catfish, See Fish, *Ameiurus nebulosus*.

Catostomus commersonii, See under Fish.

Cephenemyia jellisoni, See under Insects.

Cestodes, See under Parasites.

Chicken, See under Meat.

Chondrus crispus, Use of, in canning chicken, 348.

Cladocerans as possible hosts of *Triaenophorus*, 288.

Colour of bacon

Effect of concentration of curing salts on, 85.

Measurement of, 90.

Colour stability of Canadian Wiltshire bacon, Effect of concentration of curing salts on, 85.

Copepods, See under Parasites.

Coracidia of *Triaenophorus crassus* and *T. nodulosus* in the first intermediate host, 286.

Coregonus clupeaformis, See under Fish.

Cristivomer namaycush, See under Fish.

Curing pickle, Effect of concentration of salts in, on colour and colour stability of Canadian Wiltshire bacon, 85.

Curing salts, See under Salts.

Cyclops, as host for *Triaenophorus* species, 164, 287, 288.

Cyprinus carpio, See under Fish.

Deer, Black-tailed, Life history and morphology of two dipterous parasites of, 171, 180.

Deer louse fly, See Insects, *Lipoptena depressa*.

Deer nostril fly, See Insects, *Cephenemyia jellisoni*.

Deer tick, See Insects, *Lipoptena depressa*.

Dehydration
of pork, 394.
See also Drying.

Diaptomus ashlandi, Infection of, with *Triaenophorus*, 287.

Diptera, See Insects for members of.

Dog(s)
Rate of phenothiazine in, 157.
Normal and after partial and complete denervation of the heart, Cardiac action of posterior pituitary extract in, 311.

Domestic animals, See Animals.

Dried egg powder, See Egg powder.

Drosophila melanogaster, See under Insects.

Drying, See Dehydration and Egg powder, Dried.

Duck, Mallard, See Birds, *Anas platyrhynchos*.

Egg powder, Dried
Bacteria in
and their effect on formation of fluorescing substances, 106.
as affected by moisture, 337.
as affected by temperature, 334.
as test of quality, 2-6.

Flavour quality of
An improved fluorescence method for measuring, 341.
Some factors affecting the measurement of, 341.

Fluorescence of
as test of quality, 3-6.
Behaviour and nature of substances causing, 98.
Effect of enzymes and bacteria on substances causing, 106.
Effect of heat on formation of substances causing, 105.
Effect of pH on, 345.
Effect of protein solvents and precipitants on, 102.
Effect of temperature on, 345.
Fat solvents and their effect on, 99.
Fractions causing, 101.
Quality as assessed by, 98.
Source of materials causing, 98.
to assess quality, An improved method for using, 341.

Keeping quality of
Effect of gas packing on, 271.
Effect of moisture content on, 211.
Effect of storage temperature on, 211, 271.
Effect of tablet method of storing on, 275.

Low grade, Definition and properties of, 267.

Quality of
as affected by drying conditions, 389.
as affected by heat treatments, 194.
as tested by numbers of bacteria, 2-6.
Methods of assessing, 1.
See also Egg powder, Dried (Flavour and Keeping).

Solubility of, Refractometric method for determining, 203.

Storage of
and the effect of temperature on bacterial content, 336.
as affected by temperature and gas packing, 275.
by tablet method and its effect on keeping quality, 275.

Egg(s)

Liquid, Effect of temperature on bacterial content of, 333.
of *Triaenophorus* in the first intermediate host, 284.
White of, dried, Fluorescence in, 99.
Yolk of, dried, Fluorescence in, 99.

Embryo

of *rhea*, Main arteries in neck and thorax of, 189.
of *salmon*, Growth of, 19.

Enzymes, Effect of, on formation of fluorescing substances in dried eggs, 106.

Erythizon dorsatum in Canada

Distribution of, 293.
Form of, 293.
Variations in pelage and skull characters of, 296.

Esox lucius, See under Fish.

Fat extraction, Fluorescence values of dried egg powder as affected by method of, 341.

Filter method of measuring colour of meat, 92.

Fish

Ameiurus nebulosus, Cardiac output of, 77.
Amia calva, Cardiac output of, 77.
blood, Output of, from heart, 77.
Cardiac output of four species of, 77.
Catostomus commersonii, Cardiac output of, 77.

Coregonus clupeaformis, host for plerocercoids of *Triaenophorus*, 161.

Cristivomer namaycush
A new tapeworm species from, 145, 148.

Parasites of, in Algonquin Park, 405.

Cyprinus carpio, Cardiac output of, 77.

Esox lucius, Life history of *Triaenophorus crassus* and *T. nodulosus* in, 160, 164.

heart, Stroke output of, 77.

Herring, Effect of freezing and thawing on quality of, 8.

Leucichthys tullibee, host for plerocercoids of *Triaenophorus*, 161.

Lota maculosa, host for plerocercoids of *Triaenophorus*, 164.

of Lesser Slave Lake, Alberta, Cestodes of, 160.

Percopsis omiscomaycus, host for plerocercoids of *Triaenophorus*, 164.

Prosopium sp., host for plerocercoids of *Triaenophorus*, 161.

Salmo fario
A new tapeworm species from, 145, 148.

Parasites of, in Algonquin Park, 405.

Fish—concluded

Salmo salar, Growth of embryo of, 19.
Salvelinus fontinalis
A new tapeworm species from, 145, 148.
Parasites of, in Algonquin Park, 405.
Species of, as hosts for various stages of three *Triaenophorus* species, 161, 164.
Stizostedion vitreum, host for an apparently undescribed species of *Triaenophorus*, 164.

Flavour of dried egg powder, An improved fluorescence method and some factors affecting the measurement of, 341.

Flies, See Diptera.

Flukes, See Parasites, Trematodes.

Fluorescence, See under Egg powder.

Freezing, Effect of, on quality of canned herring, 8.

Fungi, See Bacteria.

Gas packing of dried egg powder, Effect of, on keeping quality, 275.

Gelatine used in canning chicken, 328.

Growth of the salmon embryo, 19.

Heart

of dog

after bilateral vagotomy, Effect of posterior pituitary extract on, 319.

after complete denervation, Effect of posterior pituitary extract on, 321.

after thoracic sympathectomy, Effect of posterior pituitary extract on, 319.

after unilateral vagotomy and bilateral sympathectomy, Effect of posterior pituitary extract on, 321.

Normal, Effect of posterior pituitary extract on, 313.

of fish, Stroke output of, 77.

rate, See Heart of dog and fish.

Heat, See Temperature.

Herring, See under Fish.

Horses, Fate of phenothiazine in, 156.

Immersion technique, used in comparing toxicity of insecticides, 37, 39.

Insecticides, Standardizing of a laboratory method for comparing the toxicity of, 35.

Insects

Cephenemyia jellisoni, Life history and morphology of, 171.

Insects—concluded

Drosophila melanogaster
as test animal in comparing toxicity of insecticides, 36.
Development of wild type and Bar eyes of, 279, 280.
Eversion of the cephalic complex of, 281.
Lipoptena depressa, Life history and morphology of, 180.
Neodiprion
flemingi, n. sp. Peck, Description of adults and larvae of, 121, 132.
lanielensis, n. sp. Peck, Description of adults and larvae of, 115, 131.
species attacking pines in Eastern Canada, Identification of, 110, 123.

Irish moss, Use of, in canning meat, 348.

Jelly

Irish moss used as, in canning of meat, 348. on canned chicken, Device for testing strength of, 329.

Lake trout, See Fish, *Cristivomer namaycush*.

Leucichthys tullibee, See under Fish.

Ling, See Fish, *Lota maculosa*.

Lipoptena depressa, See under Insects.

Lota maculosa, See under Fish.

Louse fly, Deer, See Insects, *Lipoptena depressa*.

Mallard, See Birds, *Anas platyrhynchos*.

Meat

Bacon, See Pork.
Canadian Spiced Ham, See Pork, Raw and canned.
Canadian Spiced Pork, See Pork, Raw and canned.
Chicken, Canning of
Device for testing jelly strength used in, 329.
Factors affecting quality in, 325.
Irish moss used as jelly in, 348.
Methods of precooking in, 325.
Herring, Canned, Effect of freezing and thawing on quality of, 8.
Pork
Colour and colour stability of, as affected by curing salts, 85.
Dehydration of, 394.
Measurement of the colour of, 90.

Meat—concluded

Pork—concluded
Method of determining vitamin B₁ in, 262, 263.
Raw and canned, Vitamin B₁ content of, 262, 264.
Trichinosis in Montreal, 413.
Spiced luncheon, See Pork, Raw and canned.

Moisture in dried egg powder, See Egg powder, Dried.

Moss, Irish, See Irish moss.

Neodiprion, See under Insects.

Nicotine alkaloid, used in tests for comparing toxicity of insecticides, 38, 39.

Nicotine sulphate, used in tests for comparing toxicity of insecticides, 38, 39.

Nitrogen, Storage of dried eggs packed in, 275.

Nostril fly, Deer, See Insects, *Cephenemyia jellisoni*.

Odocoileus hemionus columbianus, Host for two dipterous parasites, 171, 180.

Oxygen affinity of blood of fish, Relation to stroke output of the heart, 81.

Palatability as test of quality of dried egg powder, 3-6.

Parasites

Acanthocephala parasitic on trout in Algonquin Park, 410.

Cestodes
parasitic on trout in Algonquin Park, 407.

Proteocephalus parallacticus, a new species of, in trout, 145.

Triaenophorus crassus
in the first intermediate host, 284.
Life history of, in pike, 160.

Triaenophorus nodulosus, in the first intermediate host, 284.

Triaenophorus sp.?, Record of observation in, in pickerel, 164.

Copepods
as hosts or probable hosts of *Triaenophorus*, 287.
parasitic on trout in Algonquin Park, 410.

Insects
Cephenemyia jellisoni, parasitic on deer, 176.

Lipoptena depressa, parasitic on deer, 180.

Parasites—concluded

Nematodes

- parasitic on trout in Algonquin Park, 409.
- Trichinosis, Human incidence of, in Montreal, 413.
- of deer, Life history and morphology of *Cephenemyia jellisoni* and *Lipoptena depressa*, 171, 180.
- of trout in Algonquin Park, 405.
- Protozoa parasitic on trout in Algonquin Park, 406.
- Trematodes parasitic on trout in Algonquin Park, 407.

Perch, Trout, See Fish, *Percopsis omiscomaycus*.

Percopsis omiscomaycus, See under Fish.

Pests, See Wireworms.

pH

- as test of quality in dried egg powder, 2-6.
- Effect of, on fluorescence values of dried egg powder, 345.

Phenothiazine, Fate of, in domestic animals, 151.

Pickeral, See Fish, *Stizostedion vitreum*.

Pig(s)

- Fate of phenothiazine in, 157.
- Trichinosis in Montreal, 413.

Pike, See Fish, *Esox lucius*.

Pine

- Jack, See *Pinus Banksiana*.
- Red, See *Pinus resinosa*.
- White, See *Pinus Strobus*.

Pinus, Banksiana, resinosa, and Strobus, Identification of sawflies that attack, 110, 123.

Fishes, See Fish.

Pituitary extract, See Heart, Dog.

Porcupine, See *Erethizon dorsatum*.

Pork, See under Meat.

Potassium chloride value as test of quality in dried egg powder, 3-6.

Procercooids of *Triadenophorus crassus* and *T. nodulosus* in the first intermediate host, 287.

Prosopium sp., See under Fish.

Protein extraction, Fluorescence values of dried egg powder as affected by method of, 342.

Proteocephalus parallacticus, See under Parasites, Cestodes.

Protozoa, See under Parasites.

Rabbits, Fate of phenothiazine in, 157.

Red pine, See *Pinus resinosa*.

Refractometric method for determination of solubility of dried egg powder, 203.

Rhea americana intermedia, See Birds, Rhea.

Roundworms, See Parasites, Nematodes.

Salmo

fario, See under Fish.

salar, See under Fish.

Salmon, See Fish, *Salmo salar*.

Salts, Curing, Effect of concentration of, on colour and colour stability of Canadian Wiltshire bacon, 85.

Salvelinus fontinalis, See under Fish.

Sawflies, See Insects, *Neodiprion*.

Sheep, Fate of phenothiazine in, 151.

Sodium chloride, nitrate, and nitrite, Effect of concentration of, on colour and colour stability of Canadian Wiltshire bacon, 85.

Solubility of dried egg powder, Refractometric method for determination of, 203.

Speckled trout, See Fish, *Salvelinus fontinalis*.

Spectrophotometer, Use of, in measuring colour of meat, 91.

Spray technique, used in tests for comparing toxicity of insecticides, 37, 38.

Stizostedion vitreum, See under Fish.

Sucker, See Fish, *Catostomus commersonii*.

Tablet method of storing dried egg powder, Effect of, on keeping quality, 275.

Tapeworms, See Parasites, Cestodes.

Temperature

Bacteria in egg powder as affected by, 334.

Bacteria in liquid egg as affected by, 333.

Changes in, and their effect on dried egg powder, 194.

Temperature—concluded

Fluorescence values of dried eggs as affected by, 345.
Formation of fluorescing substances in dried eggs as affected by, 105.
Freezing and thawing and their effect on quality of canned herring, 8.
Keeping quality of dried eggs as affected by, 211.
of drying, cooling, and storing egg powder, Effect of, on bacterial content, 334.
of drying egg powder, Effect of, on quality, 389.
of liquid egg, Effect of, on bacterial content, 333.
of storage of egg powder, Effect of, on keeping quality, 272.

Thawing, Effect of, on quality of canned herring, 8.

Thiamin, See Vitamin B₁.

Tick, Deer, See Insects, *Lipoptena depressa*.

Toxicity, See Insecticides.

Trematodes, See under Parasites.

Triaenophorus, See under Parasites, Cestodes.

Trichinosis, See under Parasites, Nematodes.

Trout

Brown, See Fish, *Salmo fario*.
Lake, See Fish, *Cristivomer namaycush*.
perch, See Fish, *Percopsis omiscomaycus*.
Speckled, See Fish, *Salvelinus fontinalis*.

Vacuum packing, Effect of, on storage of dried egg powder, 275.

Vitamin B₁

Content of, in raw and canned pork, 262, 264.
Determination of, in raw and canned pork, 262, 263.

Waterfowl, See Birds, *Anas platyrhynchos*.

Water value as test of quality in dried egg powder, 2-6.

White pine, See *Pinus Strobus*.

Wild type eyes of *Drosophila melanogaster*, Development of, 279.

Wiltshire bacon, See Meat, Bacon.

Wireworms of economic importance in Canada, Identification of, 358.

Worms, See Parasites (Acanthocephala, Cestodes, Nematodes, and Trematodes) and Wireworms.

